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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,945

09/16/2003

Edward John Custy

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02/22/2006

OFFICE OF PATENT COUNSEL  
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EXAMINER

NGUYEN, KEVIN M

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/663,945

**Applicant(s)**

CUSTY, EDWARD JOHN

**Examiner**

Kevin M. Nguyen

**Art Unit**

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/16/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Tecu et al (US 6,703,924) hereinafter Tecu.

3. As to claim 1, Tecu teaches a tactile user interface device (a tactile display reads out information 10, fig. 1), comprising:

a substrate [a panel 12, see Fig. 1];

a plurality of tactile elements [a plurality of tactile elements 16.1 through 16.16, see Fig. 1, col. 2, lines 39-40] disposed on said substrate [the panel 12] wherein each of said plurality of tactile elements [plurality of tactile elements 16.1 through 16.16] correspond to a pixel, a fraction of a pixel, or a group of pixels on a video display [each of plurality of output element 16 correspond to a single pixel on the computer screen, a number of pixels grouped within a zone, a 200x150 array of tactile output elements 16 consistent with aspect ratio of the screen, see col. 2, lines 41-48]; and

wherein each of said plurality of tactile elements [Fig. 1 is identical to Fig. 5, see col. 4, lines 5-6] comprises:

means for sensing pressure from a user's finger to determine if the user has depressed any of said plurality of tactile elements [each of touch sensors 44 provides an output responsive to a user's touch of the associated tactile output element, Fig. 5, col. 4, lines 24-26; the touch sensors 44 comprise any kind of pressure responsive transducers, Fig. 5, col. 4, lines 32-36];

means for conveying tactile feedback information to said user [the touch sensors 44/transducers are energized by the user's touch causing the tactile display 42 to provide information, col. 5, lines 5-8; the drive system 30 is similar to those used to control tactile displays providing feedback, col. 3, lines 43-44].

4. As to claim 7, Tecu teaches a tactile user interface device (a tactile display reads out information 10, fig. 1), comprising:

a planar substrate [a panel 12, see Fig. 1];

a plurality of pins [a plurality of tactile elements 16.1 through 16.16, see Fig. 1, col. 2, lines 39-40] disposed on said planar substrate [the panel 12] wherein each of said plurality of pins [plurality of tactile elements 16.1 through 16.16] correspond to a pixel, a fraction of a pixel, or a group of pixels on a video display [each of plurality of output element 16 correspond to a single pixel on the computer screen, a number of pixels grouped within a zone, a 200x150 array of tactile output elements 16 consistent with aspect ratio of the screen, see col. 2, lines 41-48]; and

wherein each of said plurality of pins [Fig. 1 is identical to Fig. 5, see col. 4, lines 5-6] comprises:

means for sensing pressure from a user's finger to determine if the user has depressed any of said plurality of pins [each of touch sensors 44 provides and output responsive to a user's touch of the associated tactile output element, Fig. 5, col. 4, lines 24-26; the touch sensors 44 comprise any kind of pressure responsive transducers, Fig. 5, col. 4, lines 32-36];

means for conveying tactile feedback information to said user [the touch sensors 44/transducers are energized by the user's touch causing the tactile display 42 to provide information, col. 5, lines 5-8; the drive system 30 is similar to those used to control tactile displays providing feedback, col. 3, lines 43-44].

5. Claims 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayward (US 6,693,516).

6. As to claim 14, Hayward teaches a method of fabricating a tactile user interface device (figs. 5G, 5H and 5I, col. 10, line 20), comprising steps of:

fabricating a substrate [a printed circuit board 73, col. 10, line 15-21];

disposing a plurality of tactile elements on said substrate [pressure sensors 95 sandwiched between the contactor array 90 and the printed circuit board 73, col. 10, lines 16-18] wherein each of said tactile element [the contactor array 90] comprises:

means for sensing pressure from a user's finger [pressure sensors 95, col. 10, line 20-21; a finger 8, fig. 2D, col. 5, line 55];

means for conveying tactile feedback information to said user [a reversible transducer employs bi-directional tactile information is relayed to and from a user and a computer, col. 11, lines 63-66].

Art Unit: 2674

7. As to claim 15, Hayward further teaches the steps of providing a means for sensing pressure from a user's finger to determine if the user has depressed any of said plurality of tactile elements [causing the position of the cursor to depend on finger location, pressure applied and/or tangential force components, whether these are visible or not, col. 12, lines 1-8]

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-5 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tecu in view of Hayward.

10. As to claim 2, Tecu teaches all of the claimed limitation, except for sensing pressure from a user's finger comprises a device that provides an electrical signal when said pressure from user's finger exceeds a set pressure threshold.

However, Hayward teaches a related tactile user interface device (element 31, fig. 2F, and see abstract) for pressure sensors (col. 6, lines 25-30) comprising contactors 25 and 26 (pins, fig. 2F, col. 6, line 59 through col. 7, line 6), are processed by the small movement in a Z direction. The small movements in the Z directions are also measured and transduced in a signal Z (t) (col. 7, lines 12-19); whenever the Z(t)

exceeds the event signaling threshold, yet another specific tap sequence may be experienced by the user (col. 7, lines 34-44).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the Z(t) exceeds the event signaling threshold from the user's finger as taught by Hayward in the pressure sensors of Tecu in order to achieve the benefit of improve structural strength in a miniature device, and the ability to take advantage of strain-based actuating effects such as piezoelectric (see Hayward, col. 8, lines 16-19).

11. As to claim 3, Hayward teaches wherein said device that provides an electrical signal when said pressure from user's finger exceeds a set pressure threshold is a switch [actuators 52 operate in the d31 or d11 mode, see col. 8, lines 28-31].

12. As to claim 4, Hayward teaches wherein said device that provides an electrical signal when said pressure from user's finger exceeds a set pressure threshold is a piezoelectric sensor [the piezo-electric actuators 52, see col. 8, lines 1-15].

13. As to claim 5, the combination of Tecu and Hayward teaches wherein said tactile feedback information includes vibrations [pixel zone 22.13 (dark) corresponds to the tactile output elements 16.4 shown in its lowest position, while pixel zone 22.4 (bright) corresponds to the tactile output elements 16.4 shown in its highest position, see Tecu, col. 3, lines 26-30; vibrotactile sensations, see Hayward, col. 5, lines 40-45, and heat expansion actuators, see Hayward, col. 3, line 5].

14. Claim 8 shares the same limitations as those of claim 2 and therefore the rationale for rejection will be the same.

Art Unit: 2674

15. Claim 9 shares the same limitations as those of claim 3 and therefore the rationale for rejection will be the same.

16. Claim 10 shares the same limitations as those of claim 4 and therefore the rationale for rejection will be the same.

17. As to claim 11, Tecu teaches wherein said means for conveying tactile feedback information to said user comprises a device for positioning said pins to a plurality of positions [pixel zone 22.13 (dark) corresponds to the tactile output elements 16.4 shown in its lowest position, while pixel zone 22.4 (bright) corresponds to the tactile output elements 16.4 shown in its highest position, see Tecu, col. 3, lines 26-30].

18. As to claim 12, Tecu teaches wherein said device for positioning said pins to a plurality of positions is a piezoelectric device [a pad with pressure sensitive piezoelectric areas underneath the tactile output element array of the main display, col. 4, lines 35-37].

19. As to claim 13, Hayward teaches wherein said device for positioning said pins to a plurality of positions is an electromagnet [a variety of devices may be employed as motive sources, including magnetostrictive actuators, col. 3, lines 1-6].

20. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tecu in view of Schmidt et al (US 6,354,839) hereinafter Schmidt.

Tecu teaches all of the claimed limitation, except for the tactile user interface device comprises at least one microelectromechanical device has at least two mechanical states.



However, Schmidt teaches the tactile user interface device (a Braille display 2, see Fig. 1, a tactile surface, col. 7, line 43) comprising at least one microelectromechanical device (MEMs 16, fig. 3). The MEMs device 16 has the actuator 28 operating to open and close the MEMs device 16 (corresponding to two mechanical states as claimed, col. 5, lines 50-58).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the microelectromechanical device operating to open and close as taught by Schmidt in the tactile user interface device of Tecu in order to achieve the benefit of provide a refreshable display that allows a user to access links or subdirectories without removing their hands from the Braille display surface (Schmidt, col. 3, lines 9-12), quickly and easily assembled or repaired (Schmidt, col. 3, line 18), eliminate any interference and prevent damage to underlying display hardware (Schmidt, col. 3, lines 27-30).

### ***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

Art Unit: 2674

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the Patent Application Information Retrieval system, see

<http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free).



Kevin M. Nguyen

Patent Examiner

Art Unit 2674

KMN

February 15, 2006